

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

VOLTERRA SEMICONDUCTOR,)	
LLC.,)	
)	
Plaintiffs,)	
)	
v.)	C.A. No. 19-2240-CFC
)	
MONOLITHIC POWER SYSTEMS,)	
INC.,)	
)	
Defendant.)	

JOINT CLAIM CONSTRUCTION CHART

Pursuant to Paragraph 15 of the Scheduling Order (D.I. 69), Plaintiff Volterra Semiconductor, LLC (“Volterra”) and Defendant Monolithic Power Systems, Inc. (“Monolithic”) hereby submit this Joint Claim Construction Chart identifying for the Court the claim terms of the Asserted Patents for which the parties have a dispute, together with the parties’ proposed constructions of the disputed claim language and citations to the supporting intrinsic evidence. Text-searchable copies of the relevant patents are attached hereto.

Patents at Issue:

- 6,362,986
- 7,525,408
- 7,772,955

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AGREED CONSTRUCTIONS

Claim Term	Claim(s)	Agreed Construction
“A method for reducing ripple in a DC-to-DC converter of the type producing an output voltage from an input voltage, comprising the steps of:”	’986 Patent, Claim 17	The preamble is limiting.
“An N-phase coupled inductor for magnetically coupling N phases of a power converter”	’408 Patent, Claim 14	The preamble is limiting.
“A two phase coupled inductor for magnetically coupling first and second phases of a power converter	’955 Patent, Claims 1, 23	The preamble is limiting.
“A coupled inductor”	’955 Patent, Claim 12	The preamble is limiting.

Claim Term	Claim(s)	Agreed Construction
“A two phase DC-to-DC converter”	’955 Patent, Claim 16	The preamble is limiting.
“coupled inductor”	’408 patent, claim 14 ’955 patent, claims 1–3, 5, 10, 12–16, 23–28	“an inductor with two or more windings arranged such that the magnetic fields produced by the windings interact with one another”

CONTESTED CONSTRUCTIONS**U.S. Patent Nos. 6,362,986 (17, 18, 20, 21, 23)**

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
"reducing ripple"	'986 Patent, Claim 17	<p>Not indefinite¹</p> <p>'986 Patent: Abstract; col. 1, lines 10-67; col. 2, line 2-col. 3, line 54; col. 6 lines 3-15; col. 7, line 33-col. 10, line 67; col. 11, line 33-col. 12, line 27; FIG. 2; FIG. 3A; FIG. 3B; FIG. 4; FIG. 5; FIG. 6; FIG. 7; FIG. 9; FIG. 10.</p> <p>IPR2020-1368, Paper 3, Petition for Inter Partes Review at 2, 12, 17, 19, 20-25, 30, 45, 46, 65, 66.</p> <p>IPR2020-1370, Paper 3, Petition for Inter Partes Review at 12, 15, 25, 32, 44, 52, 53, 64.</p>	<p>Indefinite</p> <p>'986 Patent at Abstract, 1:18-59, 2:20-24, 2:38-45, 2:64-66, 3:10-16, 3:22-38; 3:51-54, 4:33-36, 6:3-7, 7:33-8:35, 8:61-9:14, 9:33-66, 10:9-39, 10:59-67, 11:34-12:16, Figs. 4, 5, 12.</p> <p>IPR2020-1368, Paper 3, Petition for Inter Partes Review at 45.</p> <p>IPR2020-1368, Paper 9, Patent Owner's Preliminary Response at 14-16, 31.</p> <p>IPR2020-1370, Paper 3, Petition for Inter Partes Review at 44.</p>

¹ Volterra understands that the Court often addresses an assertion of indefiniteness separately from the claim construction process. Volterra therefore respectfully requests the Court's guidance as to whether the parties should address indefiniteness in their claim construction briefs.

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		<p>IPR2020-1370, Paper 18, Decision Denying Institution of Inter Partes Review at 10, 20.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.</p>	<p>IPR2020-1370, Paper 9, Patent Owner's Preliminary Response at 14–16.</p>
“orienting, in like direction”	'986 Patent, Claim 17	<p>Plain and ordinary meaning.</p> <p>'986 Patent: col. 2, lines 19-33; col. 4, line 66-col. 5, line 13; col. 6 line 3-col. 8, line 35; col. 7, lines 15-23; col. 10, lines 8-34; FIG. 1; FIG. 2; FIG. 3A; FIG. 3B; FIG. 10.</p> <p>IPR2020-1368, Paper 19, Decision Denying Institution of Inter Partes Review at 10</p> <p>IPR2020-1370, Paper 18, Decision Denying Institution of Inter Partes Review at 10.</p>	<p>“windings are wound in such a way so that mutual flux between the windings flows in opposite directions”</p> <p>'986 Patent at 2:24–33, 4:28–29, 4:66–5:13, 6:7–10, 7:19–32, Figs. 1, 3A, 3B.</p> <p>IPR2020-1368, Paper 9, Patent Owner's Preliminary Response at 14–16.</p> <p>IPR2020-1370, Paper 9, Patent Owner's Preliminary Response at 14–16.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.	
"to increase coupling between the windings"	'986 Patent, Claim 17	<p>Not indefinite</p> <p>'986 Patent: Abstract; col. 1, lines 48-67; col. 2, lines 19-33; col. 2, line 59-col. 3, line 54; col. 6, line 3-col. 10, line 67; col. 12, lines 11-16; FIG. 1; FIG. 2; FIG. 3A; FIG. 3B; FIG. 4; FIG. 5; FIG. 6; FIG. 7; FIG. 9; FIG. 10; FIG. 11.</p> <p>IPR2020-1368, Paper 3, Petition for Inter Partes Review at 46.</p> <p>IPR2020-1370, Paper 3, Petition for Inter Partes Review at 32, 33, 45</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence</p>	<p>Indefinite</p> <p>'986 Patent at Abstract, 1:48-67; 2:38-63; 6:3-7:4, 8:4-35, Figs. 1, 2.</p> <p>IPR2020-1368, Paper 3, Petition for Inter Partes Review at 46 (footnote 4).</p> <p>IPR2020-1368, Paper 9, Patent Owner's Preliminary Response at 14-16, 44-45.</p> <p>IPR2020-1370, Paper 3, Petition for Inter Partes Review at 45 (footnote 4).</p> <p>IPR2020-1370, Paper 9, Patent Owner's Preliminary Response at 14-16, 38-39.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		cited in the parties' claim construction briefs.	IPR2020-1370, Paper 18, Decision Denying Institution of Inter Partes Review at 15–16.
“common core”	'986 Patent, Claim 17	<p>Plain and ordinary meaning.</p> <p>'986 Patent: col. 1, lines 60-67; col. 2, lines 2-63; col. 3, line 48-col. 4, line 6; col. 6, lines 3-18; col. 7, lines 15-25; col. 9, lines 20-39; col. 10, lines 8-14; col. 10, lines 35-51; col. 11, lines 2-4; col 12, lines 17-45; FIG. 1; FIG. 2; FIG. 3B; FIG. 3A; FIG. 8; FIG. 10; FIG. 13; FIG. 14.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.</p>	<p>“single magnetic core with no gap”</p> <p>'986 Patent at Abstract, 1:48–67, 2:3–12, 2:38–63, 4:33–36, 6:5–10, 6:38-40, 7:19–25, 10:9–12, 10:35–51, 11:1–4, 12:5–9, Figs. 1, 3A, 3B, 8, 9, 10, 12–14.</p> <p>IPR2020-1368, Paper 9, Patent Owner's Preliminary Response at 14–16.</p> <p>IPR2020-1370, Paper 9, Patent Owner's Preliminary Response at 14–16.</p> <p>7,352,269 Patent Prosecution History, Response to Office Action (September 14, 2005) at 21–22.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
"a [first/second] number of turns"	'986 Patent, Claim 23	<p>Plain and ordinary meaning.</p> <p>'986 Patent: col. 12, lines 55-62; FIG. 1; FIG. 3A; FIG. 3B; FIG. 8; FIG. 10; FIG. 13; FIG. 14; claim 15; claim 16; claim 23.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.</p>	<p>"two or more turns"</p> <p>'986 Patent at 3:14-16, 12:55-62.</p>
"windings"/"winding"	'986 Patent, Claims 17, 18, 20, 21, 23	<p>Plain and ordinary meaning.</p> <p>'986 Patent: Abstract; col. 1, lines 47-67; col. 2, line 2-col. 3, line 8; col. 3, line 39-col. 4, line 48; col. 5, lines 2-45; col. 9, lines 20-39; col. 10, lines 8-13; col. 11, line 33-col. 12, line 27; FIG. 2; FIG. 3A; FIG. 3B; FIG. 4; FIG. 5; FIG. 6; FIG. 7; FIG. 9; FIG. 10.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by</p>	<p>"a conductor completing at least one full turn around a magnetic core"</p> <p>'986 Patent at 2:3-33, 10:9-12, 10:43-47, 11:15-17, 12:55-62, 12:17-45, Figs. 1, 3A, 3B, 8, 9, 10, 12-14.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		Defendant, as well as any evidence cited in the parties' claim construction briefs.	

U.S. Patent Nos. 7,525,408 (14, 20)

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
"wound about"	'408 patent, Claim 14	<p>Plain and ordinary meaning.</p> <p>'408 Patent: col. 2, line 65-col. 3, line 2; col. 4 lines 15-48; col. 5, line 20-col. 6, line 26; col. 7, lines 4-29; col. 7, lines 44-56; col. 8, lines 43-54; col. 9, lines 13-28; col. 11, lines 9-12; col. 11, lines 41-63; col. 12, lines 7-12; FIG. 6; FIG. 7; FIG. 8; FIG. 9; FIG. 10; FIG. 16; FIG. 17</p> <p>IPR2020-1348, Paper 1, Petition for Inter Partes Review at 10, 11, 23, 25, 33, 38, 39, 73, 74, 82-83, 96-100.</p> <p>IPR2020-1348, Paper 8, Patent Owner's Preliminary Response at 23, 25-29.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence</p>	<p>"wrapped around"</p> <p>'408 Patent at 5:24-26, 5:56-58, 7:4-13, 7:27-29, 7:53-56, 9:24-28, 11:41-12:12, Figs. 3, 4, 6-13, 17.</p> <p>IPR2020-1348, Paper 8, Patent Owner's Preliminary Response at 31-33, 37-38, 49-51, 57, 63-65.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		cited in the parties' claim construction briefs.	
"a magnetic core including ... N-1 passageways"	'408 patent, Claim 14	<p>Plain and ordinary meaning.</p> <p>'408 Patent: col. 2, line 58-col. 3, line 2; col. 4 lines 26-48; col. 4, line 58-col. 5, line 10; col. 5, line 20-col. 6, line 13; col. 6, line 57-col. 9, line 47; col. 10, line 21-col. 12, line 12, FIG. 1; FIG. 3; FIG. 4; FIG. 5; FIG. 6; FIG. 7; FIG. 8; FIG. 9; FIG. 10; FIG. 14; FIG. 15; FIG. 16; FIG. 17.</p> <p>IPR2020-1348, Paper 1, Petition for Inter Partes Review at 35, 36, 38-41, 45, 46, 79.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.</p>	<p>"N-1 passageways within a single magnetic core, rather than two magnetic core elements separated by a gap"</p> <p>'408 Patent at 4:15–54, 4:65–67, 6:20–7:3, 9:48–10:50, Fig. 2, Fig. 5, Figs. 11–14.</p> <p>7,352,269 Patent Prosecution History, Response to Office Action (September 14, 2005) at 21–22.</p> <p>7,525,408 Patent Prosecution History, Response to Restriction Requirement (March 26, 2008) at 6-7.</p> <p>IPR2020-1348, Paper 8, Patent Owner's Preliminary Response at 67.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
<p>"N connecting magnetic elements" / "each connecting magnetic element being coupled to the first and second magnetic elements"</p>	<p>'408 patent, Claim 14</p>	<p>Plain and ordinary meaning.</p> <p>'408 Patent: col. 2, line 58-col. 3, line 2; col. 4, lines 26-48; col. 4, line 58-col. 5, line 10; col. 5, line 20-col. 6, line 13; col. 6, line 57-col. 9, line 47; col. 10, line 21-col. 12, line 12, FIG. 1; FIG. 3; FIG. 4; FIG. 5; FIG. 6; FIG. 7; FIG. 8; FIG. 9; FIG. 10; FIG. 14; FIG. 15; FIG. 16; FIG. 17.</p> <p>IPR2020-1348, Paper 1, Petition for Inter Partes Review at 17, 18, 26-33, 60, 61, 89, 92, 99-102, 107-108.</p> <p>IPR2020-1348, Paper 19, Decision Denying Institution of Inter partes Review at 3-6.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.</p>	<p>"N magnetic elements for physical connection" / "Each connecting magnetic element physically connected to the first and second magnetic elements"</p> <p>'408 Patent at 9:48–10:50, Figs. 11–14.</p> <p>7,525,408 Patent Prosecution History, Response to Restriction Requirement (March 26, 2008) at 6-7.</p> <p>IPR2020-1348, Paper 8, Patent Owner's Preliminary Response at 65-67.</p> <p>IPR2020-1348, Paper 19, Decision Denying Institution of Inter partes Review at 5.</p>

U.S. Patent Nos. 7,772,955 (1–3, 5, 10, 12–21, 23–28)

Claim Term	Claim(s)	Plaintiffs’ Proposed Construction, Intrinsic Evidence	Defendant’s Proposed Construction, Intrinsic Evidence
“[a/the] magnetic core forming a passageway”	’955 patent, Claims 1, 12, 16, and 23	<p>Plain and ordinary meaning.</p> <p>’955 Patent: col. 2, line 58–col. 3, line 2; col. 4 lines 26–48; col. 4, line 58–col. 5, line 10; col. 5, line 20–col. 6, line 13; col. 6, line 57–col. 9, line 47; col. 10, line 21–col. 12, line 12; FIG. 1; FIG. 3; FIG. 4; FIG. 5; FIG. 6; FIG. 7; FIG. 8; FIG. 9; FIG. 10; FIG. 14; FIG. 15; FIG. 16; FIG. 17.</p> <p>IPR2020-1350, Paper 1, Petition for Inter Partes Review at 3, 4, 5, 7, 24–36, 40, 44, 45, 46, 49–58.</p> <p>IPR2020-1350, Paper 9, Patent Owner’s Preliminary Response 15, 16.</p> <p>IPR2020-1350, Paper 20, Decision Denying Institution of Inter partes Review at 3, 4, 9.</p>	<p>“a passageway within a single magnetic core, rather than two magnetic core elements separated by a gap”</p> <p>’955 Patent at 4:15–54, 4:65–67, 6:20–7:3, 9:48–10:50, Fig. 2, Fig. 5, Figs. 11–14.</p> <p>7,352,269 Patent Prosecution History, Response to Office Action (September 14, 2005) at 21–22.</p> <p>7,772,955 Patent Prosecution History, Response to Restriction Requirement (June 30, 2009) at 6.</p> <p>7,772,955 Patent Prosecution History, Response to Office Action (January 28, 2010) at 9–10.</p> <p>IPR2020-1350, Paper 9, Patent Owner’s Preliminary Response at 15, 18.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		<p>IPR2020-1350, Paper 1, Petition for Inter Partes Review at 2-4, 17-19, 24, 42, 57, 58, 65, 66.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.</p>	<p>IPR2020-1351, Paper 9, Patent Owner's Preliminary Response at 14, 20, 54-55.</p>
"planar surface"	'955 patent, Claim 23	<p>Plain and ordinary meaning.</p> <p>'955 Patent: col. 2, lines 46-57; col. 4 lines 15-25; col. 5, lines 18-19; col. 6, lines 11-13; col. 6 lines 57-61; col. 7, lines 32-35; col. 7, line 66-col. 8, line 2; col. 8, lines 27-30; col. 8, lines 47-63; col. 9, lines 32-35; col. 10, lines 26-28; col. 11, lines 45-48; FIG. 1; FIG. 2; FIG. 3; FIG. 4; FIG. 6; FIG. 7; FIG. 8; FIG. 9; FIG. 10; FIG. 14; FIG. 17.</p> <p>IPR2020-1350, Paper 1, Petition for Inter Partes Review at 11, 15, 16, 37, 53, 63.</p>	<p>"flat surface"</p> <p>'955 Patent at 4:15–5:17, 6:11-13, Figs. 2, 4.</p> <p>IPR2020-1351, Paper 9, Patent Owner's Preliminary Response at 14, 63-64.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		<p>IPR2020-1351, Paper 1, Petition for Inter Partes Review at 20, 49-52, 59-67, 105-110.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.</p>	
"contacting"	'955 patent, Claim 23	<p>Plain and ordinary meaning.</p> <p>'955 Patent: col. 2, lines 46-57; col. 4, lines 15-25; col. 5, lines 18-19; col. 6, lines 11-13; col. 6 lines 57-61; col. 7, lines 32-35; col. 7, line 66-col. 8, line 2; col. 8, lines 27-30; col. 8, lines 47-63; col. 9, lines 32-35; col. 10, lines 26-28; col. 11, lines 45-48; FIG. 1; FIG. 3; FIG. 4; FIG. 6; FIG. 7; FIG. 8; FIG. 9; FIG. 10; FIG. 14; FIG. 17.</p> <p>IPR2020-1350, Paper 1, Petition for Inter Partes Review at 11.</p>	<p>"physically joining"</p> <p>'955 Patent at 4:67-5:3, Fig. 2.</p> <p>IPR2020-1351, Paper 9, Patent Owner's Preliminary Response at 63.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		<p>IPR2020-1351, Paper 1, Petition for Inter Partes Review at 63-64.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.</p>	
<p>"extending to the bottom side of the magnetic core"</p>	<p>'955 patent, Claim 12</p>	<p>Plain and ordinary meaning.</p> <p>'955 Patent: Claim 3; Claim 4; Claim 12; col. 2, lines 46-57; col. 5, lines 10-17; col. 5, line 52-col. 6, line 10; col. 6, line 20-col. 10, line 20; FIG. 2; FIG. 3; FIG. 4; FIG 5; FIG. 6; FIG. 7; FIG. 8; FIG. 9; FIG. 10; FIG. 11; FIG. 12; FIG. 13.</p> <p>IPR2020-1350, Paper 1, Petition for Inter Partes Review at 11, 62, 63, 66.</p> <p>Plaintiff reserves the right to rely on any evidence cited or relied on by</p>	<p>"folded underneath the magnetic core"</p> <p>'955 Patent at 5:11-17, Fig. 2.</p> <p>7,772,955 Patent Prosecution History, Response to Office Action (January 28, 2010) at 9.</p> <p>IPR2020-1350, Paper 9, Patent Owner's Preliminary Response at 48-49.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		Defendant, as well as any evidence cited in the parties' claim construction briefs.	
"outer leg"	'955 patent, Claim 12	<p>Not Indefinite</p> <p>'955 Patent: col. 2, line 58-col. 3, line 2; col. 5, lines 18-19; col. 6, lines 11-13; col. 7, lines 4-43; FIG. 2; FIG. 4; FIG 5; FIG. 6.</p> <p>IPR2020-1350, Paper 1, Petition for Inter Partes Review at 11, 26-29, 51-53.</p> <p>IPR2020-1350, Paper 20, Decision Denying Institution of Inter partes Review at 35-38.</p> <p>IPR2020-1351, Paper 1, Petition for Inter Partes Review at 11, 18, 19, 57, 58, 91.</p> <p>IPR2020-1351, Paper 9, Patent Owner's Preliminary Response at 41, 42-44, 48, 49, 71.</p>	<p>Indefinite</p> <p>'955 Patent, 4:15–5:19, Fig. 2.</p> <p>IPR2020-1350, Paper 9, Patent Owner's Preliminary Response at 39.</p>

Claim Term	Claim(s)	Plaintiffs' Proposed Construction, Intrinsic Evidence	Defendant's Proposed Construction, Intrinsic Evidence
		Plaintiff reserves the right to rely on any evidence cited or relied on by Defendant, as well as any evidence cited in the parties' claim construction briefs.	